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(54) DEVICE FOR MOBILE TELEPHONES

VORRICHTUNG FÜR MOBILTELEFONE

DISPOSITIF POUR TELEPHONES MOBILES

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Description

The present invention relates to a device for mobile telephone apparatus, comprising at least one loudspeaker and at least one microphone arranged in connection with a headrest, the loudspeaker and the microphone being connected to the mobile telephone apparatus.

In the field of mobile telephones, there is a demand for allowing the user to use the telephone while at the same time having both hands free, particularly in order to be able to drive the vehicle in a safe manner. This is particularly the case in connection with so called "duplex" transmission, i.e. where signal transmission via the mobile telephone is carried out in two directions simultaneously.

A device which is directed towards this demand is previously known from patent document EP 0368291, which shows a mobile telephone apparatus with a loudspeaker 6 and a microphone 3. The loudspeaker 6 is integrated in the headrest, whereas the microphone 3 may be arranged either on the sun visor or on a flexible arm which is attached under the roof.

Another device of a similar type is known from Swedish patent no. SE 467681, in which an existing headrest may be provided with a separate loudspeaker unit comprising a loudspeaker element and a microphone.

The object of the present invention is to provide an improved device for use in connection with mobile telephone apparatus, which device allows the user's hands to be free while at the same time providing an easily exchangeable unit which may be arranged on an existing vehicle seat. This is achieved by means of a device comprising the features defined in claim 1.

The invention will now be described in greater detail with reference to the annexed drawings, in which Fig. 1 shows the invention in a dismounted state, Fig. 2 shows the invention mounted on a vehicle seat, Fig. 3 is a side view and Fig. 4 is a front view of the invention.

Fig. 1 shows a preferred embodiment of the invention, which is primarily intended to be used in connection with a mobile telephone apparatus in a vehicle. The invention comprises a removable headrest 1 intended to be mounted on a vehicle seat 2. Inside the headrest 1 there is arranged at least one loudspeaker element 3 which is preferebly placed adjacent to one of the user's ears. Two separate loudspeaker elements may of course be arranged adjacent to the user's respective ear. The loudspeaker element 3 is provided with connections (not shown) which are connected to the wiring 4, which in turn is connected to the fixed part of the mobile telephone apparatus via the connector 5. The fixed part of the mobile telephone apparatus may be arranged on the vehicle's dashboard in a conventional manner.

A microphone 6 is arranged on a flexible arm 7, preferably at its end section. The arm 7 is rotatably mounted on the headrest 1 via a pivotal joint 12, the axis of rotation of which is essentially perpendicular to the longitudinal direction of the vehicle seat (and the headrest 1) and also essentially parallel to the upper side of the headrest 1. In this manner, a displacement of the arm 7 is possible, which displacement is intended to move the microphone 6 between a position in front of the mouth of the user when the telephone is in use and a position above the headrest when the telephone is not in use. The arm 7 is preferably designed so that when turned upwards it is arranged in a position along the contour of the headrest 1, in order to minimize the space requirements. Furthermore, the arm 7 is manufactured from a material of such a nature that it may easily be bent forwards and backwards, for example for allowing the microphone 6 to be arranged in a position in front of the user's mouth which is suitable for speech transmission. The microphone 6 is also provided with a connection for wires (not shown) which run from the microphone 6 to the wiring 4. The wires, by means of which the microphone 6 is connected, are preferably arranged inside the arm 7.

The complete assembly is mounted on the vehicle seat 2 by means of at least one, preferably two, tubes 8 which cooperate with corresponding sockets 9 in the back rest section of the vehicle seat 2.

Fig. 2 shows the device according to the invention in an assembled state. The microphone 6 and the arm 7, respectively, are here shown in their "lowered" position, i.e. with the microphone 6 in front of the user's mouth. In the case where the telephone is not being used, the arm 7 may be swung upwards so that the microphone 6 is positioned above the upper edge of the headrest 1. This "raised" position is indicated by dashed lines in Fig. 2. In this regard, the arm 7 will follow the contour of the headrest 1. The line A indicates the axis of rotation around which the arm 7 and its microphone 6 may be rotated. It should be noted that by means of this raised position, an arrangement of the arm 7 and the microphone 6 is provided which requires a small amount of space in the case where the telephone is not in use.

Fig. 3 shows a side view of the invention, with the arm 7 in its lowered position. The headrest 1 is built around a framework 10, preferably of hard plastic, which is surrounded by a soft filling 11. The loudspeaker 3 is arranged in a recessed manner in the framework 10 so that the front edge of the loudspeaker 3 does not protrude in front of the framework 10. This arrangement minimizes the risk of injuries if the user's head hits the headrest 1, for example in an accident.

Fig. 4 is a front view of the invention, from which the placement of the loudspeaker 3 is apparent. The filling of the headrest 1 is partly removed in front of the loudspeaker 3, so that the sound from the loudspeaker 3 is not attenuated to an unnecessarily high degree.

The invention is especially intended for use in so called full duplex transmission, where there is no need

for the user to use any control lever to control when the speech transmission should take place.

A particular advantage is that the entire device, including loudspeaker and microphone, is integrated in the headrest. In this manner, an existing headrest may easily be replaced with a headrest which is prepared for use in connection with mobile telephone apparatus.

According to one possible embodiment of the invention, at least one of the tubes 8 may be provided with connection means (not shown) at its end sections (as a replacement for the wiring 4 and the connector 5), which connection means may be connected for cooperation with corresponding connection means arranged inside the backrest of the vehicle seat 2. In this manner, there is no need for separate wiring which would have had to have been arranged "outside" the vehicle seat, but instead wires for the connection of the microphone 6 and the loudspeaker 3 may be allowed to run inside the tubes 8.

Furthermore, according to a particular embodiment of the invention, the arm 7 may be rotated rearwards and behind the headrest 1 so that the arm 7 and the microphone 6 are placed in a "raised" position behind the headrest 1.

The invention may be used together with previously known systems for active sound reduction according to the principle of phase cancellation, so that the loudspeaker 3 is used for deletion of sound and noise in the passenger compartment of the vehicle. By means of conventional electronics this deletion may be limited to certain frequency ranges so that the transmission of speech signals in connection with mobile telephony is not disturbed. Also the microphone 6 may be integrated in a system for active noise reduction, for recording noise in the vehicle compartment.

According to a further embodiment the arm 6 may control adjustment means, for example for switching on and off the telephone or for adjusting the loudspeaker volume. Such means may be integrated in the pivotal joint 12 and may be influenced by the movements of the arm 6. Thus, the user may control the functions of the telephone by means of head movements.

Claims

1. Device for use in connection with a mobile telephone apparatus comprising at least one loudspeaker (3) and at least one microphone (6) arranged in connection with a headrest (1), the loudspeaker (3) and the microphone (6) being connected to the mobile telephone apparatus, **characterized in** that the headrest (1) is adapted to be removably arranged on a vehicle seat (2), that the loudspeaker (3) is integrated within the headrest (1) and that the microphone (6) is arranged on an arm (7), which arm (7) is attached to the headrest (1).

2. Device according to claim 1, **characterized in** that the arm (7) is pivotally arranged on the headrest (1) to enable a displacement of the arm (7) between a position at the upper side of the headrest (1) and a position in front of the user's mouth.

3. Device according to any one of claim 1 or claim 2, **characterized in** that the arm (7) is of a flexible material.

4. Device according to any one of the previous claims, **characterized in** that it comprises electrical connector means (4, 5) associated with said headrest (1) and connecting said microphone (6) and said loudspeaker (3) with a part of the mobile telephone apparatus which is fixed in said vehicle.

5. Device according to any one of the previous claims, **characterized in** that the headrest (1) comprises at least one tube (8), the end section of which is provided with connection means for connection of wires to the microphone (6) and/or the loudspeaker (3).

6. Device according to claim 5, **characterized in** that the tube (8) is essentially shaped as an existing attachment tube for the headrest (1).

Patentansprüche

1. Vorrichtung zur Verwendung im Zusammenhang mit einem Mobiltelefongerät mit wenigstens einem Lautsprecher (3) und wenigstens einem Mikrofon (6), die in Verbindung mit einer Kopfstütze (1) angeordnet sind, wobei die Lautsprecher (3) und das Mikrofon (6) mit dem Mobiltelefongerät verbunden sind, dadurch gekennzeichnet, daß die Kopfstütze (1) entfernbar auf einem Fahrzeugsitz (2) angeordnet ist, daß der Lautsprecher (3) in die Kopfstütze (1) integriert ist, und daß das Mikrofon (6) an einem Arm (7) angeordnet ist, welcher an der Kopfstütze (1) befestigt ist.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der Arm (7) für seine Verlagerung zwischen einer Stellung einer oberen Seite der Kopfstütze (1) und einer Stellung vor dem Mund des Benutzers schwenkbar an der Kopfstütze (1) angebracht ist.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß der Arm (7) aus einem flexiblen Material besteht.

4. Vorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß sie eine elektrische Anschlußeinrichtung (4, 5) aufweist, die der Kopfstütze (1) zugeordnet ist und das Mikrofon (6) und die Lautsprecher (3) mit einem Abschnitt

des Mobiltelefongeräts verbindet, das in dem Fahrzeug befestigt ist.

5. Vorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Kopfstütze (1) wenigstens ein Rohr (8) aufweist, dessen Endabschnitt mit einer Anschlußeinrichtung zur Verbindung mit Drehten zu dem Mikrofon (6) und/oder dem Lautsprecher (3) versehen ist.

6. Vorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß das Rohr (8) im wesentlichen wie ein vorhandenes Befestigungsrohr für die Kopfstütze (1) gestaltet ist.

Revendications

1. Dispositif destiné à être utilisé avec un appareil à téléphone mobile, comprenant au moins un haut-parleur (3) et au moins un microphone (6) disposés en coopération avec un appuie-tête (1), le haut-parleur (3) et le microphone (6) étant connectés à l'appareil à téléphone mobile, caractérisé en ce que l'appuie-tête (1) est destiné à être disposé de façon amovible sur un siège (2) de véhicule, en ce que le haut-parleur (3) est intégré à l'appuie-tête (1), et en ce que le microphone (6) est placé sur un bras (7), le bras (7) étant fixé à l'appuie-tête (1).

2. Dispositif selon la revendication 1, caractérisé en ce que le bras (7) est disposé de manière pivotante sur l'appuie-tête (1) afin qu'un déplacement du bras (7) soit possible entre une position qui se trouve à la face supérieure de l'appuie-tête (1) et une position qui se trouve devant la bouche de l'utilisateur.

3. Dispositif selon l'une des revendications 1 et 2, caractérisé en ce que le bras (7) est formé d'un matériau flexible.

4. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce qu'il comporte un dispositif connecteur électrique (4, 5) associé à l'appuie-tête (1) et connectant le microphone (6) et le haut-parleur (3) à une partie de l'appareil à téléphone mobile qui est fixée dans le véhicule.

5. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que l'appuie-tête (1) comporte au moins un tube (8) dont le tronçon d'extrémité a un dispositif de connexion de fils au microphone (6) et/ou au haut-parleur (3).

6. Dispositif selon la revendication 5, caractérisé en ce que le tube (8) a essentiellement la configuration d'un tube existant de fixation de l'appuie-tête (1).

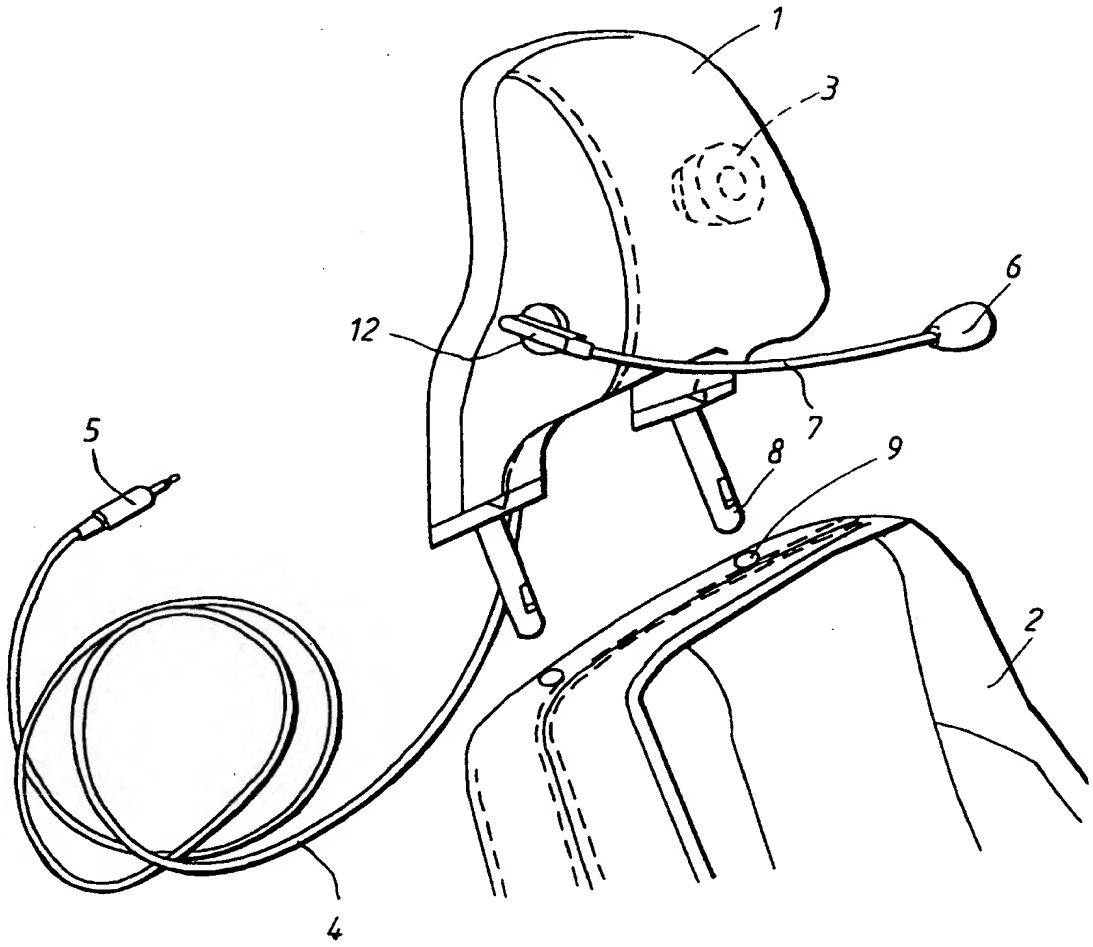

FIG. 1

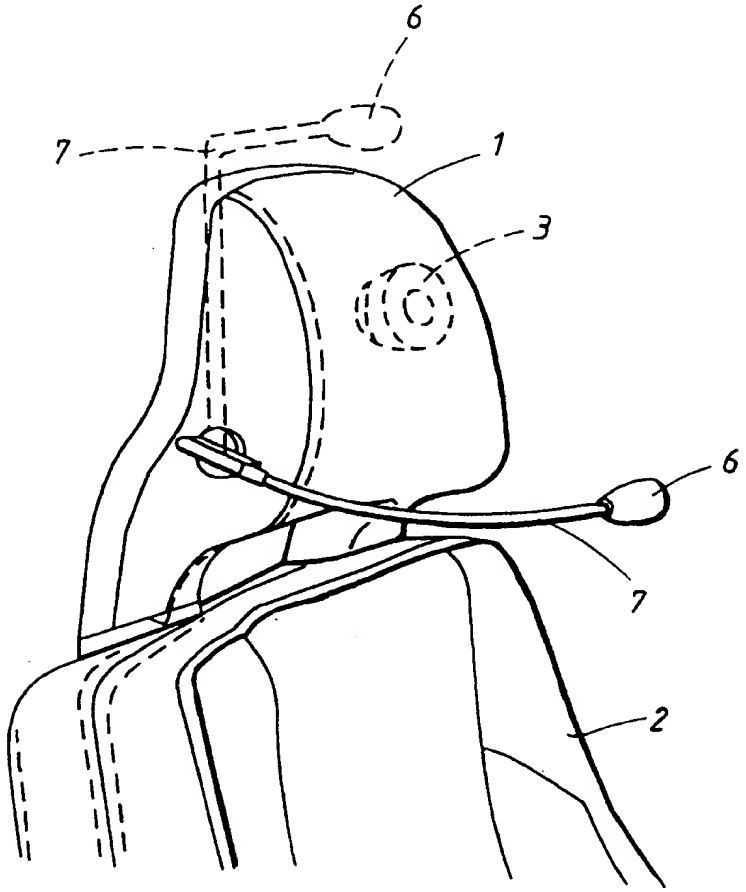

FIG.2

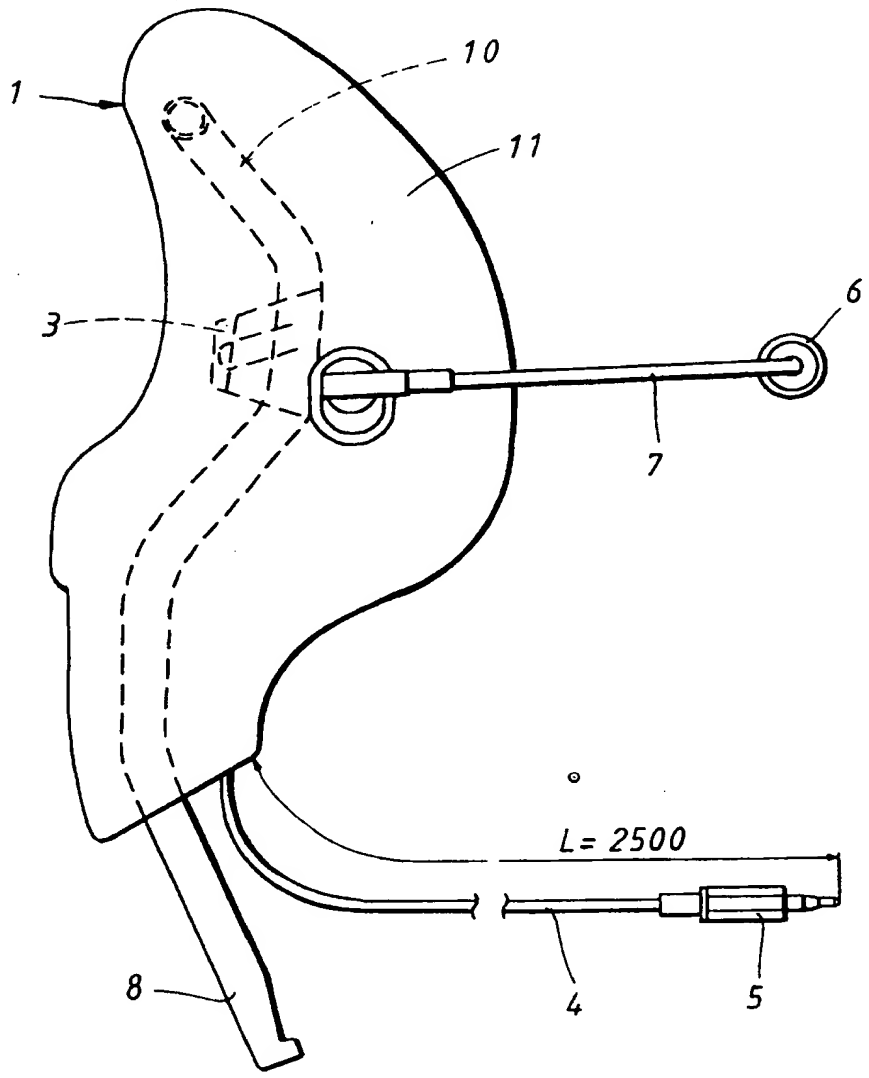

FIG.3

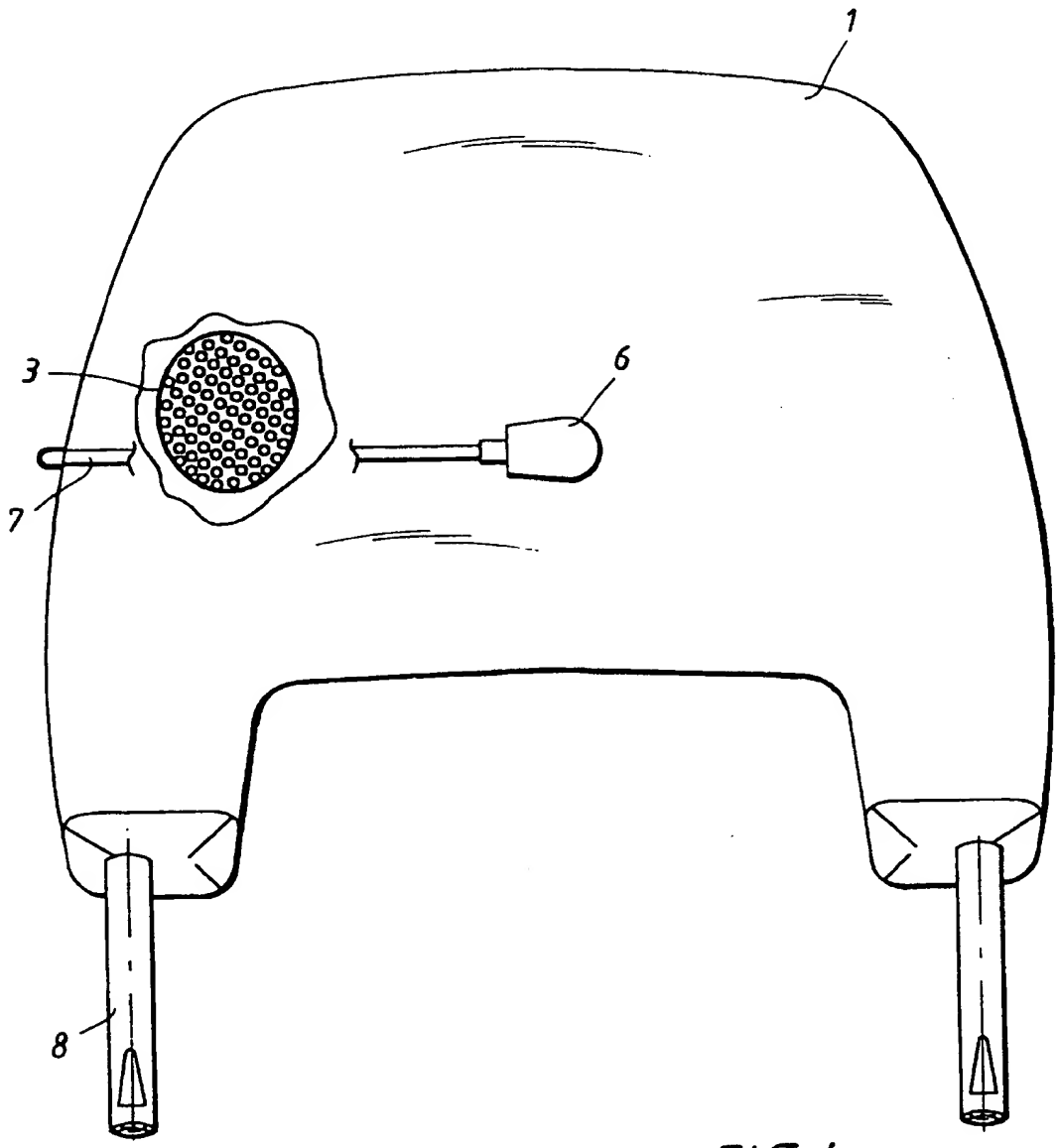

FIG.4